ALEXANDRA SECELEANU, University of Nebraska-Lincoln

Minimum distance functions for fat point ideals

In coding theory, a code is a linear subspace of a finite dimensional vector space. The Hamming distance of the code is the minimum number of nonzero entries in a nonzero element (codeword) of this subspace. Hamming distance has a nice geometric interpretation: if the elements of a basis for the code are viewed as coordinates for a set of points in projective space and if these points are distinct, then the Hamming distance can be computed bases on the maximum number among these points that are contained in a hyperplane.

Motivated by these considerations, we present generalizations for the notion of Hamming distance for fat points and, more generally, for arbitrary homogeneous ideals. This family of numerical functions is termed minimum distance functions. This talk is based on joint work with Susan Cooper, Stefan Tohaneanu, Maria Vaz Pinto and Rafael Villarreal.